

a As suggested by Cobbs, a representative low or lowest
b printing speed is e. g. roughly 13 inches per second
c (ips), or about 34 cm/sec. Cobbs likewise indicates that
d a representative intermediate speed is roughly 17 ips (42
e cm/sec) and a representative high or highest speed is
f e. g. roughly 27 ips (68 cm/sec).

REMARKS

Applicants most sincerely thank Examiner Julian D. Huffman for having allowed all but four of the claims.

The Applicants respectfully object, however, that in the series of the last three Official Actions considered together, the Applicant has been whipsawed between (1) suggestions made in an Official Action and (2) refusal to accept various logical implementations of those selfsame suggestions.

More specifically, as to claims 8 and 14, the Official Action mailed September 26, 2001 said (page 2, emphasis added):

"Claims 8 and 14 are objected to because of minor informalities:

"In claims 8 and 14, the phrases 'low velocity' and 'low positioning accuracy' are relative terms and may not be clear. It is suggested that applicant claim that the velocity and positioning accuracy is less than a certain amount."

The phrase "minor informalities" strongly suggests that a cure should be easy or at least straightforward. Please note, however, that in at least the last two responses, Applicants have specifically stated that they (emphasis added) —

"appreciate this suggestion and are attempting to follow it. In event the foregoing explanation of

basis for the claims is not deemed persuasive, the Applicants respectfully ask the Examiner to advise what wording, if any, he would regard as acceptable for claiming this feature."

— and other wordings to the same effect. No such advice has been received, and the Applicants now ask once again for the Examiner's guidance in implementing his suggestion.

Please note also that the Applicants previously have proposed language stating the "certain amount" both:

- (1) in absolute terms (numbers), justified by information shown to have been in Applicants' possession (and in possession of the public) at the time of filing and long before; and
- (2) in relative terms, *i. e.* referred to other features ~~in the invention itself, or in the environment of the~~ invention.

Applicants' proposals have all been turned aside, and Applicants' requests for guidance in implementing the Examiner's suggestion have gone unanswered. Accordingly the Applicants' representative is mystified as to the exact nature of the recitation that was suggested.

The present paper responds to the arguments presented in the Official Action. This paper shows that Applicants are entitled to rely upon, and incorporate expressly into the present application and claims:

- numbers mentioned in the originally cited art; and also
- a primary thrust of Applicants' specification, as originally deposited in the PTO, which established the relationship between speed of colorimetric reading with an

auxiliary sensor/carriage and speed of writing with pens carried on the main carriage; and

- a similarly established indication of relative positioning accuracy as claimed.

Thus Applicants once again ask for the Examiner's guidance in implementing his earlier suggestions; and at the same time Applicants present additional information in support of their previous traverse of the Section 112 rejections.

ERRORS IN THE JULY 7 AMENDMENT — Applicants very sincerely regret that the remarks section of the July 7 amendment, and also claims 8 and 51, badly misstate the numbers given by Cobbs. The remarks do correctly state Cobbs's low-speed figure of 13.33 ips, but then incorrectly state a conversion of that value to metric: it should be 34 cm/sec (NOT 5 cm/sec).

Worse still, claims 8 and 51 reverse the misstated English and metric numbers. The correct reference speed should actually be: "13 inches (34 cm) per second" (and NOT "13 cm [5 inches] per second").

As explained more fully below, it also appears that claims 8 and 14 may incorrectly refer to a "dimension of an individual mark" rather than of an "individual patch" or "individual array".

Applicants respectfully and very apologetically request the Examiner's assistance in entering the correct values and words by Examiner's Amendment.

INCORPORATION BY REFERENCE — Applicants note that in the current Official Action, with regard to "incorporation by refer-

ence" of material in the Cobbs patent, which in turn is mentioned in the Sievert patent, it is said that —

"essential material may not be incorporated by reference to a U. S. patent or application which itself incorporates 'essential material' by reference. See MPEP 608.01(p)I."

Applicants respectfully traverse, however, and point out that Cobbs is not only incorporated in a second-generation incorporation by reference, but is also cited directly in the present specification at page 8, lines 16 and 17, viz. —

"Examples of such sensing elements and their uses appear in U. S. 5,600,350 of Cobbs et al. (assigned to the Hewlett Packard Company)"

(The insertion proposed hereinabove at top of page 2 is to immediately follow that paragraph partially quoted here.)

Furthermore, even with respect to second-generation incorporation by reference as such, the cited MPEP section 608.01(p)I states in pertinent part the purpose of the mentioned policy (emphasis added):

"The incorporation by reference practice with respect to applications which issue as U.S. patents provides the public with a patent disclosure which minimizes the public's burden to search for and obtain copies of documents incorporated by reference which may not be readily available. [This] policy . . . ensures that reasonably complete disclosures are published as U.S. patents. The following is . . . guidance for incorporation by reference in applications which are to issue as U.S. patents. . . ."

It is generally agreed that rules and policies should not be applied with a sweep or scope that goes beyond the express purpose of or reason for the rules and policies. The above MPEP passage makes plain that the purpose of the MPEP provision is to preclude issuance of patents that include second-

generation incorporation by reference, as such issuance would burden the public.

On the other hand, the cited MPEP section does go on to say:

"A. Review of Applications Which Are To Issue as Patents. An application as filed must be complete in itself in order to comply with 35 U.S.C. 112. Material nevertheless may be incorporated by reference, Ex parte Schwarze, 151 USPQ 426 (Bd. App. 1966). An application for a patent when filed may incorporate "essential material" by reference to . . . a U.S. patent, . . . subject to the conditions set forth below. . . ."

"In any application which is to issue as a U.S. patent, essential material may not be incorporated by reference to . . . a U.S. patent . . . which itself incorporates 'essential material' by reference"

Thus with regard to incorporation by reference as such, these passages suggest that the present application may have been deficient in form, in regard to the particular information about positioning velocity being "on the order of a fraction of 13 inches (34 cm) per second".

The policy discussed above expressly relates to the convenience of — or burden to — the public, in having to look up material that may be hard to find. It is therefore understood that this policy does not preclude explicit incorporation, directly into the Applicant's text, of the relevant material.

Such explicit, direct incorporation does not impact the stated policy; and also as mentioned above the Cobb reference is already cited in a direct reference at page 8 of the present application. Applicants therefore seek to incorporate the information about speed explicitly and directly into the text of the present specification at that same point.

Even putting aside that direct reference to Cobb, then notwithstanding that the second-generation incorporation by

reference as such is informal and therefore unacceptable, the Applicants respectfully submit that the informal attempted incorporation by reference does make factually clear that Applicants had that information in their possession at the time of the present filing.

In fact, it is well established that every skilled person in the relevant field is presumed to have possession of that knowledge. Once again, this information is no more than a mere numerical statement of what is a conventional representative low-end velocity for marking, 13 ips (34 cm/sec).

Therefore it is not new matter and its direct explicit incorporation should be permitted now. Applicants have previously offered to make such direct incorporation, but there has been no response to that offer. Applicants therefore now request entry of the text amendment presented herewith.

EVIDENCE OF SLOWER SENSOR MOVEMENT — In the Official Action it is also said that Applicants' specification lacks "further evidence that the sensor moves at a velocity which is less than that used in printing." The Applicants have pointed to the current application in the paragraph bridging pages 35 and 36, but the Official Action responds:

"These pages [35 and 36] state that the sensor need not be moved at high speed and moves rather slowly. These relative terms do not relate the speed of the sensor to the marking speed."

With greatest respect, it appears that the statements on pages 35 and 36 are being read out of context. The cited paragraphs read (emphasis added):

"This auxiliary carriage can have very loose requirements. As it is used only very infrequently its lifetime as measured in duty cycles is very low. Its positioning accuracy need be only sufficient to

position the sensor over a relatively large test patch.

"As the pen carriage is only called upon to position the sled [auxiliary carriage] during the color-calibration reading mode, the sled need not be movable at high speed. Since it can therefore be moved rather slowly, its weight and size are not at all critical."

The key questions here are: "at high speed compared to what?" and also "rather slowly compared to what?" It will be shown below that the specification considered as a totality answers these questions very, very explicitly.

An even more explicit single passage, however, appears in the present application at page 40, line 20, through page 41 line 6 (single-underscore in original, double-underscoring added):

"As the block diagram suggests, the auxiliary sensor or colorimeter carriage 52 remains decoupled from the pen carriage 20 and parked . . . , in the writing mode of Fig. 5. This includes writing test pattern color patches 56

"In colorimetric-data reading mode, however — that is, when reading those same patches 56, the pens are turned off and the pen carriage moves next to the auxiliary sensor carriage 52' (Fig. 6) and the two are then coupled together. The pen carriage and its drive and position/speed-monitoring subsystems can then be brought to bear in positioning the colorimeter carriage, and the two carriages move together.

"While the pens remain turned off, as indicated in this second block diagram the pen carriage moves 16 the auxiliary carriage, relatively slowly, from its parked position to positions above all the patches 56 in turn."

Once again the key question is: "relatively to what?" The intention is clear from this latter passage or the corresponding Figs. 5 and 6, which show the colorimeter sled unhitched and hitched respectively. Surely it is even more clear when considering the passage together with the drawings.

Specifically, the intention of both passages — considering the spec taken as a whole — is to contrast operation when

reading with operation when writing. In other words, the scan speed for colorimetric-data reading is "relatively slow" as compared with the speed of scan when the carriage is carrying the pen for writing.

In a word, the reading speed is slow relative to the writing speed.

In fact actually the statements in both these passages are the climax of a painstakingly orchestrated development that builds starting from the "background" section, and is a major, main thrust of the application. Applicants sincerely regret if the crescendo of kettle drums and clashing of cymbals has obscured the relationship:

1. The only sensors light and small enough to always ride the pen carriage can do only pseudodensitometry — inadequate in many ways (page 8, line 10, through page 11 line 13).
2. Mass and weight of a conventional colorimeter far exceed the dynamic capabilities — accelerations and speeds — of a pen carriage (page 12, line 24, through page 14 line 3).

PLEASE NOTE: Hereinafter, "massive" or
"heavy" thus implies "slow".

3. Building a lightweight custom colorimeter to ride on the pen carriage ("lightweight" now implies "fast") would be a major development project (page 14, lines 5 through 8).
4. A calibration happens four orders of magnitude less often than a printing pass, so placing the mass ("slow"!) of a conventional colorimeter elsewhere, but still with access

to the pen-carriage transport system, would be vastly more cost effective (page 14, lines 9 through 24).

5. Thus the invention's separate-sensor aspect lets engineers decouple "slow" colorimeter design from limitations of "fast" pen-carriage mounting (page 16, lines 25 through 28).
6. Similarly the separate-carriage aspect "decouples" the "slow" colorimetry requirements from the "fast" printing requirements (page 19, lines 7 through 17).
7. The invention accommodates extra colorimeter weight (still implying "slow") by placing it on a separate carriage (page 35, lines 14 through 21).
8. The separate carriage ("slow") is hitched to the pen carriage (ordinarily "fast") only when colorimetry ("slow") is invoked, because that way the pens can be scanned very quickly and — once again by clear contrast — the colorimeter can be scanned "rather slowly" (page 35, line 22, through page 36 line 3).
9. In writing mode ("fast"), the auxiliary sensor or carriage ("heavy" and "slow") must be decoupled from the pen carriage; but in reading mode, which proceeds "relatively slowly", the two can be coupled together (page 40, line 27, through page 41 line 6, and Figs. 5 and 6).

Thus Applicants' text considered in its entirety makes plain the meaning of that questioned phrase "relatively slowly", namely "slowly relative to writing speed".

It should now be clear that lower dynamic requirements ("slow") of an auxiliary sensor are key to beneficially over-

coming certain drawbacks of the prior art — and accordingly to enjoying certain benefits of the invention. In the specification such general, motivating discussion is presented in numerous, separated component passages only because many of the intervening text sections are addressing, in tandem, other aspects of the invention.

CONCLUSION AS TO CLAIMS 8 & 14, WITH RESPECT TO SPEED — Based upon the information in the accompanying text amendment, and the evidence of slower sensor movement identified just above, Applicants also request allowance of claims 8 and 14.

POSITIONING ACCURACY — It is also said in the Official Action that enablement is absent for Applicant's claim 8 and 14 limitations. In the Action it is argued:

“With regards to the limitation that the low positioning accuracy is a fraction of said dimension, applicant points to page 35, lines 27-31, which state that accuracy need only be sufficient to position the sensor over a relatively large test patch. Nothing in this passage requires the accuracy to be a fraction of the dimension of a test [patch], rather all that it requires is that it is sufficient so that the sensor may be positioned over a large test patch.”

Regrettably, Applicants' representative is unable to determine the meaning of this passage. More specifically, it is not clear whether the point is to contrast the meanings of

“a relatively large test patch”, and
“a test patch”, and
“a large test patch”;

or whether there is some other meaning in the quoted passage. Clarification is requested.

Applicants respectfully submit that the citation in the specification at page 35, lines 27 through 31, simply means:

"positioning accuracy need only be sufficient to position the sensor over a test patch — and by the way, test patches are relatively large."

That is to say, the phrase "relatively large" is merely a descriptive phrase, not a restrictive phrase.

In other words, here too a major thrust of the auxiliary carriage/sensor aspects of the present invention is that design requirements of not only speed but also positioning accuracy are much looser for an auxiliary sensor and carriage, used only in reading test patches, than for the pen carriage as used in printing.

A parallel development to that traced in the preceding section for speed, through the various portions of the specification, can be traced for positioning accuracy as well. The point is simply that precision and accuracy needed for reading test patches are coarse in comparison with the normal, commonplace precision required in printing.

It does appear to the undersigned that claims 14 and 51 incorrectly refer to "dimension of an individual mark". Perhaps these references would better be to "an individual array" or "an individual patch". If the Examiner agrees and deems the foregoing analyses persuasive, Applicant respectfully requests the Examiner's aid in making these extremely minor revisions by Examiner's Amendment.

As to the term "fraction" in claims 50 and 51, it seems to go without saying that the positional accuracy needed to locate something over an array or patch should ideally be some

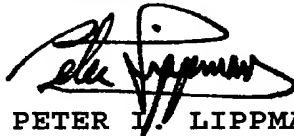
fraction of the dimension of that array or patch, rather than the array or patch dimension itself. If not, the sensor is likely to read values that are partly on the patch and partly off.

Conclusion

In view of the foregoing amendments and remarks, Applicants respectfully request the Examiner's favorable reconsideration and allowance of all the claims now standing in this case.

It is respectfully requested that, should there appear any further obstacle to allowance of the claims herein, the Examiner telephone the undersigned attorney to try to resolve the obstacle.

Respectfully submitted,



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